REMARKS

Claims 1-8 are currently amended, in order to recite that the glass being prepared by the claimed process is "a panel glass for cathode ray tubes" (see currently amended claim 1). Support for this amendment is found on page 4, line 5.

In the production of glass used for panels for cathode ray tubes, it is common knowledge that in addition to the raw components, Sb_2O_3 is used as an additive in an amount that ranges from 0.2 to 0.6 mass % (see Specification, page 2, lines 1-15). Its incorporation serves to **reduce defects** associated with bubbles within the panel glass.

However, it is known that if too much Sb_2O_3 is added the resultant glass contains defects which are due to the presence of ash. It is therefore very difficult to suppress both ash defects and bubble defects at the same time.

Applicants have found that it is now possible to produce panel glass for cathode ray tubes, by a process that allows for exclusion of Sb_2O_3 in which **no bubble defects** are present in the glass. Exclusion of Sb_2O_3 means that ash defects are eliminated as well. In the event that it is necessary to prepare glass with added Sb_2O_3, the process allows for only a slight addition of Sb_2O_3 in an amount that is lower than the level of conventional panel glass of cathode ray tubes (the content of Sb_2O_3 in Claim 1 is from 0 to 0.19 mass%).

The method for preventing the bubble defects is accomplished by varying the water content in the glass and carrying out vacuum degassing at a pressure of P which ranges from P_A to 6.1W+0.06 atm.

The rejection of claims 1-4 and 8 under 35 U.S.C. § 102(b) in view of Tanaka et al. (Proceedings of the International Conference on Science and Technology of New Glasses, 1981, A4, pps. 71-76) is traversed.

Applicants note that Tanaka's disclosure states that it is possible to conduct vacuum degassing of a glass having a water content of 0.22 wt%. However, Tanaka does not describe

that vacuum degassing can be made without incorporating Sb_2O_3, in which it is commonly known to add Sb_2O_3 in order to reduce bubble defects in glass panels for cathode ray tubes.

Furthermore, the water content that Tanaka describes in Table 1 is the water content of **hardened glass**, not **molten glass**. Tanaka describes a glass production process (p. 72, fourth paragraph), in which the glass is allowed to cool to room temperature. Once cooled, the "number of bubbles in [the] glass was counted by eye inspection," and the "contents of dissolved gases were measured by gas-chromatography" or "estimated from IR absorption" (p. 72, fifth paragraph). The water content of the **hardened glass** is tabulated in Tanaka's Table 1. It is noted that there is no discussion of applying a negative pressure such that the pressure of the glass does not exceed 6.1W+0.06 atm, where W is the amount of water in the molten glass, expressed in terms of mass percent.

On the contrary, Applicants have found that the water content substantially influences the vacuum degassing process step and the ability to reduce bubble defects in the resultant glass panel for cathode ray tubes. In particular, the feature of the present invention resides in that the H_2O content is made to be a certain amount or less as defined in Claim 4. Applicants have found the critical value of the water content at which the vacuum degassing is possible. Tanaka does not disclose this feature. Employing the process outlined in claim 1, even if the content of such a refining agent as Sb_2O_3 is made small as defined, the bubble defects can be effectively removed, which is advantageous for this application (page 21, lines 1 – 5).

Given that there is no disclosure of the water content in the molten glass, there can be no case of anticipation. Therefore, it is requested that the Examiner withdraw this rejection.

Furthermore, since there is no disclosure of the water content in the molten glass; it is believed that Tanaka's disclosure does not render the claimed invention obvious. The claimed invention is directed to a process. Since Tanaka's disclosure does not describe a process in which the water content is known, how can there be a suggestion or motivation to

maintain the water content within the molten glass such that the pressure of the molten glass, P, is at most (6.1W+0.06) atm? Applicants believe that the facts simply do not support a prima facie case of obviousness. Therefore, it is believed that pending claims 1-8 are not rendered obvious by Tanaka's disclosure, and it is kindly requested that the Examiner acknowledge the same.

In a like manner, the rejection of claim 5 under 35 U.S.C. § 103(a) over Tanaka in view of Yanagisawa et al. (U.S. 6,251,811) is traversed.

Tanaka treats molten glass at subatmospheric pressures in which the water content is 0.22 wt%. Yanagisawa's disclosure is directed to funnel glass for a cathode ray tube, and thus the problem to be solved is different from that sought here (col. 1, ll. 7-27). Not only does Yanagisawa's disclosure address a different problem, this disclosure does not contain a reference of the content of water in the molten glass, and its role in the production process.

Therefore, it is requested that the Examiner withdraw both of these rejections.

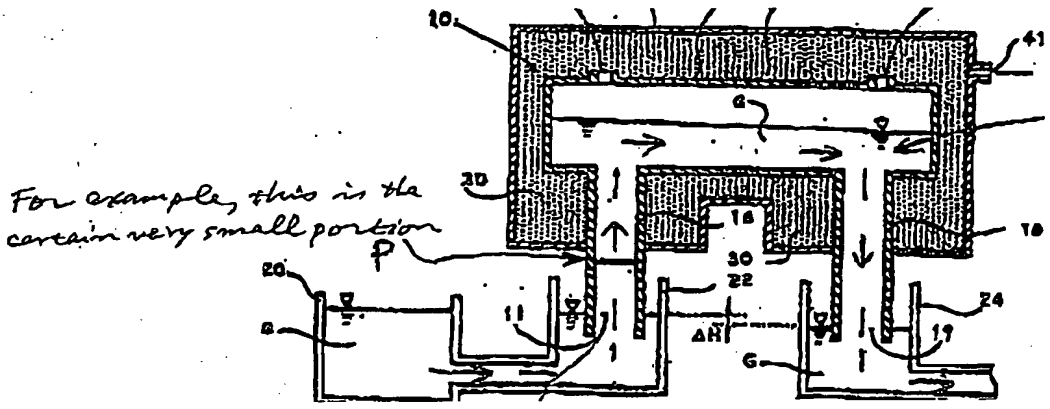
The rejection of claims 1-3 and 6-7 under 35 U.S.C. § 103(a) over Ishimura et al. (Re 36,082) or alternatively over Kawaguchi et al. (U.S. 6,332,339) is traversed.

Like Tanaka, these two references simply disclose that vacuum degassing of glass is feasible. There is no discussion of the effect of the water content in the molten glass on the pressurizing step, for that matter, there is no disclosure of the amount of water present in the molten glass. The Office has taken notice that the amount of water in all molten glass is 0.02 to 0.04 wt. %, as gleaned from Pecoraro et al. (U.S. 4,919,700). Applicants seasonably challenge this assertion, as it should be clear that this cannot be representative of all glasses, especially in view of Applicants' assertion that Tanaka treats molten glass having a water content of 0.22 wt % with subatmospheric pressures. It is hard to reconcile how the Office can maintain its assertion that Pecoraro's glass is representative of all glasses, especially in view of Tanaka's disclosure. Therefore, since Ishimura and Kawaguchi do not describe a

process in which the molten glass is exposed to a pressure that is dependent upon the water content, it is respectfully requested that the Examiner withdraw these two rejections.

The rejection of claims 1-8 under 35 U.S.C. § 112, second paragraph, is traversed.

The passage "a certain very small portion of this flowing molten glass" means a certain part of the glass present in a vacuum degassing tank. This will be explained in detail with reference to the following Figure 1:



In Fig. 1, the molten glass G flows from a tank furnace **20** toward a down stream side pit **24**, through a riser tube **16**, a horizontal vessel **14** and a down comer **18**. In this flow route, the pressure of the molten glass depends on the elevation or height of the molten glass (see Specification at page 11, line 19 et seq.), and therefore the pressure varies depending upon the height. For example, in Fig. 1, the pressure at the position **11** is P_o (substantially the same as atmospheric pressure). Further, the pressure P of the molten glass in the middle of the riser tube **16** is a pressure of the molten glass of a small volume element within the riser tube, which is at most (6.1W+0.06) atm at this particular height. This volume element is indicated by an arrow directed to a very small portion of the molten glass, as shown in Fig. 1. Accordingly, the portion in question is referred to as a certain very small portion is tantamount to saying that a volume element of the molten glass.

Finally, Applicants kindly request that the Examiner, in addition to initialing the references listed on the Forms PTO-1449, which were cited in the **Information Disclosure Statements** filed on May 30, 2002, and July 30, 2002; sign and date these forms too. Furthermore, it is requested that the Examiner provide Applicants with a copy of these Forms that are signed, dated, and initialed.

In view of the amendments to the claims and the above comments, it is believed that the application is in a condition for allowance. An early and favorable indication of the same is earnestly requested.

Respectfully submitted,
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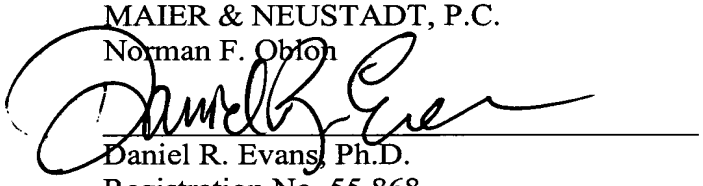

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